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248 Another plant that formerly furnished fibers is the moo'vị (*Bromelia* sp.; l.g., *curauá*);[a] they served especially for bowstrings and for lashing arrows.

[485] According to Bates the small bags (tʊ'/maka) with carrying strap were made of bromelia threads;[b] in them the hunter carried ammunition for his shotgun, and they also served as containers for trifles at home. Today, without exception, they are made of tucum fiber (pl. 7, *c*). Nowadays bromelia is only rarely cultivated, and then on a lesser scale as a medicinal plant.

177 After the beginning of commerce with the Neobrazilians, tobacco also was cultivated less frequently, and it has almost disappeared from Tukuna clearings. Its [249] old name was pɔ:'ri. Pre-Columbian occurrence is probable, since tobacco is used in Tukuna magic ceremonies. Aside from sugar cane and bananas, the Tukuna 241 adopted from the Neobrazilians only the watermelon, vɔ'račia (from the Portu- 177 guese *melancia*), and the squash, *jurumúm* (*Cucurbita maxima*), of which they make little use.

However, they cultivate almost all the Neobrazilian fruits,[c] planting around their houses mangoes (*Mangifera indica*, Reg.), avocados (*Persea gratissima*, Gaert.), *abiú*, *atta*, *biribá*, oranges, lemons, papayas (*Carica papaya* L.), guavas (*Psidium guayava*, Raddi), cashews (*Anacardium occidentale* L.), *bacuri*, and *ingá*. It is difficult to determine whether most of these fruit trees were cultivated by the Tukuna in pre-Columbian times. The genipa and the urucú figure in the legends of culture heroes; both are found in the house yards.

249 There are a great number of medicinal plants, many of them being cultivated at the border of the house yard so as to be always at hand. For poisonous snake ●278 bite the Tukuna apply a liquid prepared from the scrapings of a plant called 757 a/tapë-arị-ẹị[a] (medicine of jararáca; *Bothrops jararaca*) boiled in water; they give the victim spoonfuls of this at intervals, until the symptoms subside. If the accident occurs in the jungle, far from home, the victim chews the green leaves of a common bush, swallowing the juice in order to retard the effects of the poison.

The bulb of a cultivated plant, dyaa'-arị-ẹị[a] (diarrhoea medicine) or pʊ:'čul ("nightingale"), scraped and made into an infusion with cold water, is used for diarrhoea (dya'ị[a]). The dried leaves of čëë-arị-ẹị (medicine for blows; čëë, blows), also cultivated, are tied over bruises which break the skin. For earache, the leaves of ṅuma'čiö-arị-ẹị[a] (P., *trevo rouxo*, purple trefoil) are crushed to distill the juice, which is slightly warmed with a firebrand and introduced into the ear by a leaf rolled into funnel shape. This is also a cultivated plant.

The root scrapings of ẹ/tịmaa (bitter; l.g., *gapuky*; *Martinella obovata*) a solid-ground jungle cipó, are applied in the same way for conjunctivitis. If this remedy proves ineffective, an ash from the charred tip of the Mauritia palm, curauá, is dropped into the eye; today this species is planted only for this purpose.

Domestic animals.—For domestic animals the Tukuna have only dogs, chickens, 231 ducks, and, rarely, a cat (T., pe'cana; l.g., *pichano*). According to Tukuna belief, 235 chickens (ota', from the ancient Quechua, *atahuallpa*)[d] were caught somewhere in

[a] The term *curauá* is also used for a palm (*Mauritia curaua*).—Trans.
[b] Bates, 2:403.
[c] See Glossary for species and description of these fruits.
[d] Nordenskiöld, Deductions Suggested by the Geographical Distribution of Some Post-Columbian Words Used by the Natives of South America, Comparative Ethnographical Studies, 5:17 ff.

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together with eipó, 180 cm. long, more or less, which permits the fish to enter but not to escape (fig. 5). Nowadays it is the custom to close this door at midnight in order to place the drug (timbó) in the water of the channel by five o'clock in the morning."

Formerly, a cone-shaped basket (T., pɛ̨rɛ:'; l.g., *jiquy*) was also placed at the entrance of the weir. This was made of anajá strips, its length being 2.5 m., the mouth 1 m. in diameter; from the mouth inward there was a sort of funnel made of stems with sharp points to impede the return of the fish, once they had entered. With this, as has been already mentioned, the Tukuna use the stupefying juices of certain plants, small bushes called generically "timbó" in the lingua geral. The most active poison is provided by a broad-leafed species, ɛ'į̣ɨ̃, which crops up nearly spontaneously in old second-growth jungles but is often cultivated as well, even today. Aside from this there are a large-leafed species, va'į̣/pɛ̨, and one with tiny leaves, na:'mi, both being cultivated. The drugged fish are captured with a dip net, puçá (described on p. 00). Certain fish, such as *acarís*, are even caught by hand.

The species of greatest economic importance are:

Lingua geral	*Scientific*	*Tukuna*
pirarucú	*Arapaima gigas*	dɨ̈'ɛ̈ɨ
tambaquí	*Colossoma bidens*	tɔ'makaɛ̈ɨ
curimatá	*Prochilodus* sp.	kaɯ̈'ya
aracú	*Leporinus* sp.	ɔ'ta
tucunaré	*Cichla* sp.	tukuna'ri
pacú	*Myteles* sp.	a"ta'ɛ̈inikị
sardinha (P.)	*Chalcinus* sp.	a'raviri
surubím	*Platystoma* sp.	dyu'ta
piranha	*Serrasalmo* sp.	vɛ̈u'ma
trahira	*Macrodon* sp.	dɨ̈
matrinchan	*Characinus* sp.	ãɨ̃ɨ̃ɨ'

Aquatic chelonians are shot with the arrow harpoon (sararáca), or are surprised while laying eggs on the beach. The turtle of the species *Emys amazonica* (ba:'vɛ̈), now threatened with extinction, is no longer an important food for the Tukuna; but the species *E. dumeriliana* (tɔri')[11] is still abundant, and it, as well as its eggs, plays an important role in the aboriginal kitchen. The *matamatá* (*Chelys fimbriata;* T., nayarɛ̈) is rare.

The peixe-boi, or manatee (*Manatus inunguis;* T., a'iruvɛ̈), is rarely caught. The Tukuna do not kill the red dolphin (*Delphinus* sp.), notwithstanding their dislike for it because it scares away the fish.

Hunting

Game, which was tolerably abundant until about fifty years ago, is now rare because of the rise in the price of leather and the use of modern firearms which are sold to the Indians. In some isolated sloughs a lucky hunter may succeed in killing a tapir, pig, or deer.

[11] Literal translation; meaning not clear. Possibly the door is closed at this time in order to collect enough fish during these hours to justify the use of the drug.—Trans.

[12] On p. 25 this species is given as *Emys tracaja;* on p. 22 the author refers to it as *Podocnemis.*—Trans.

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411 on a beam near the fireplace with the points turned toward the fire in order to dry the poison. Before inserting the dart in the blowgun they moisten the poison by passing the tip between the lips.

278 [439] [178] *Curare.*—The Tukuna used to be famed for their curare, called in the lingua geral *uirari* (gʊ:'rë), which was considered the most efficient of all forms, so that foreign Indians would come from afar to obtain their product. Today this admirable skill is being forgotten and is falling into disuse. Among the Brazilian Tukuna there is only one Indian capable of making good curare, Calixto daueru'k| of Igarapézinho, a tributary of the Igarapé de São Jeronymo. I was present four times, from start to finish, during his preparation of the poison.

The principal ingredient, about 70 per cent of the raw material, is the scraped bark of a liana called gʊ:'rë,[28] a solid-ground jungle plant the trunk of which attains a thickness of some 20 cm. A few pieces of the liana are cut, and the bark is scraped at the same place. This used to be done with the edge of a bivalve shell; nowadays it is scraped with a knife. Once at home, the curare maker pours water over the scrapings into a wide-mouthed pot, where the resulting infusion forms a thick, sepia-colored soup. The scrapings are squeezed between the hands and placed on cane[29] leaves, tied together so as to form a kind of conical filter (gʊ:'rë-čin|[a]). The leaves are held fast by bending them over a hoop and tying them in this position. The filter is placed on a frame of sticks to keep it about two handbreadths above the ground, the pot is placed beneath it, and the liquid is then poured through the filter.

The second ingredient, about 20 per cent of the total, is the scraped root of a plant called in Tukuna tau'-mačirë' ("anus of toucan"). The vapors released by scraping this plant somewhat irritate the mucous membranes. The infusion, which looks like a dark-brown mud, is placed in another cane-leaf filter beside the first.

All the other ingredients are used in quantities so small that, taken altogether, they make up perhaps 10 per cent of the total. Among them are the root scrapings of the ṅɔ:b| (jabotí)[30] plant, the infusion of which is poured through a separate filter but into the same pot as the preceding ingredients. Filtered into the same pot are also infusions of aṅ/pa'ra ("cinnamon," jacamím) and a small quantity of a special type of sweet potato called gʊ:'rë-ṅëi[a]-kɔ:'rë, which is scraped with a pirarucú tongue. The other components—scrapings of vota', ɔva'ru, an|' and dyʊ'/ne—are considered of little importance.

After everything has been filtered several times, the liquids are poured together into a large pot, which is placed over a slow fire. The ash-brown scum that then forms on the surface is skimmed off, mixed with water, and filtered again. The thick, coffee-colored liquid is stirred with a hafted river shell. After some time a dark sediment begins to precipitate and is carefully removed from time to time, the liquid being poured into another pot. This task of removing the scum and sediment is continued for about a week, the preparator working about nine hours a day. It is done with extreme care, for they say that the efficacy of the poison depends largely on this. Pains are also taken not to allow overheating of the decoction,

[28] *Strychnos toxifera* ?—Trans.
[29] *Ubim*, "cane"; also known as *guaricanga de bengala*.
[30] *Vèrga de jabutí* (*Erisma calcaratum*, Warm.?).—Trans.

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since it will lose its strength if brought to a boil. If it thickens too much, water is added. The process is tedious and demands much attention. When the liquid has reached the desired thickness, after about ten days, some six or eight black beetles called "pu"a'vɐ," which feed on the fungus that grows on rotten wood, are sought in the clearing and are tossed alive into the liquid. These insects exude a fetid, yellow excretion. They are removed after about an hour, and the curare is then thickened with extreme care over a slow fire until the final consistency is that of a very dense honey, which grows even thicker upon cooling. The color is dark brown.

The mass is transferred to a small, globular pot (gʊ:'rɛ̃-če-ɨ̨ũ) especially made for this purpose, its mouth being covered with a banana leaf and securely tied. If the curare thickens too much with the passage of time, it is softened with a filtered infusion of pounded dyu'-ne leaves.

Fig. 6. Cross section of bow.

The production of curare is not at all a secret, although naturally each maker has his own individual technique. Although women and children are often present at this operation, they never take part in it beyond helping the husband bring home the raw materials or scraping the roots. Von Hassel's statement that "entre los Ticunas tienen las mujeres ... el oficio de fabricar el veneno" is inexact.[10] Sometimes they prepare a special little fire for this purpose at the edge of the clearing, but I have also seen them use the kitchen fire itself, the food being cooked to one side.

The efficacy of the Tukuna poison is discussed in the works of Barbosa Rodrigues and Santesson,[11] the latter dealing with the curare which I brought from Igarapé de São Jeronymo in 1929. I myself have seen it used in hunting monkeys. The effect on the wounded animal is to produce immediately incontinence of feces and urine, the creature falling in about three minutes.

Calixto daueru'kɨ told me that, while poisoning some darts for a hunt one day, he wounded himself very superficially in the hand. Immediately the action of the curare produced spasms of the facial muscles, pains, and incontinence of urine and feces. He cured himself by drinking his own urine, which the Tukuna consider the only remedy.

I was told of another Indian who went alone into the jungle to hunt with his blowgun. When he fired at some arboreal animal, the dart erred in its flight, ricocheted off a tree, and struck him in the back. Later, he was found dead in the jungle. It is because of such experiences that the Tukuna prefer not to go alone while hunting with curare.

For large game they do not use the blowgun, but the bow and arrow and lance. The bow (vɐra') is sometimes 2 m. long. Figure 6 shows it in cross section. The

[10] Hassel, Las tribus salvajes de la region Amazónica del Perú, Bol. Soc. Geog., 17:58.

[11] C. G. Santesson, Ein starkes Topf-Kurare von den Tucuna- (Ticuna-) Indianern des oberen Amazonas, Acta Medica Scandinavica, 75:1–9.

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pl. 9, *b*) and animal figures, also of wood, miniature canoes, and small bows and arrows. Not uncommonly one will see a spinning-top (ńu"tomačõ; Tessmann, *nótomas*) made of a tucumã nut, with a lateral hole and a wooden peg; it is spun by a cord twisted about this peg, the loop fastening the top being jerked by the left hand, which secures it. Contrary to what Tessmann says, the Tukuna do have the whirligig or buzzer disk (*Surrscheibe*, mu'uk|; l.g., mutuca, or gadfly)[1] made of a piece of gourd with serrated edges. The bull-roarer (*brinquedo do cão*) is rare; some say that it came to the Tukuna as a Neobrazilian game. Little girls and young maidens sometimes pass the time making cat's cradles with an endless cord, stretching it between the fingers and toes and using the teeth as an aid. 524 857

Very early, a small burden basket is made for a girl, with which she accompanies her mother to the clearing. A boy receives a small paddle and javelin and goes with his father in the canoe to fish. Furthermore, children begin to take active part in festivities at an early age, dancing with their little companions of the same age and sex and partaking of alcoholic beverages when their parents permit it. Later on, even though they can scarcely propel a canoe, they begin to play for hours on end in the igapó, killing small fry and eating tiny fruits. 857 868

Because they all, from the age of two years, know how to swim, there is no danger of drowning. Similarly, while searching for fruits they learn to climb trees with astonishing dexterity; they sometimes spend hours perched on tree limbs simply from sheer pleasure at being aloft.

I have already referred (p. 50) to the fact that children here squall and fight among themselves much more than in any other tribe I know of; also, the parents frequently punish them physically but on the whole do not scold them much with yells and insults, correcting them with a sudden gesture and with few words or none. With remarkable calm they discipline children under two years of age who become naughty or cry obstinately. With a silencing gesture the mother or father orders the eldest sister to fetch a flower of a species of nettle (l.g., pinupinú; T., na:-ku'), of which a few specimens are planted for this purpose around the clearing, and it is placed at the child's side without a word. If he obeys, very well; otherwise, if he touches the flower lightly with the naked skin of his limbs and body, the contact produces a painful burning sensation, which, however, is considered beneficial to the health of the infant. Usually the child recognizes the nettle on sight and is terribly afraid of it. Adults apply it as a remedy for local pain, poisonous insect bites, or rheumatism. Some fathers, moved by their predilection for male children, permit boys all sorts of abuses and naughtiness up to the age of three or four, while they oblige their daughters to bear silently the frequent, and not so innocent, attacks of the brothers' petty tyranny until the day of reckoning arrives. Then, the father, deciding that the cup of patience is filled, suddenly punishes the boy in such a way that he never again trusts in paternal forbearance, never again feels secure, and flees at the slightest suspicious movement (see p. 51). 857 861 [278]

[1] In Brazil, non-Indians make this toy out of a button with a string threaded through the holes, the free ends being knotted together. Holding the extreme ends of the double loop in both hands, the operator winds up the string tightly by a looping motion for which the button provides the weight. The extreme ends of the string are then pulled taut, and the button rapidly untwirls the string, producing a whining sound like that of a gadfly (*mutuca*).—Trans. [177]

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291 Men formerly wore a belt with one apron of tururi inner bark in
[174] front and another behind. The penis was stuck under the belt. Women perhaps at first went about entirely nude, but later adopted a short cloth of tururi or of woven cotton, wrapped around the hips. Men wore
301 bracelets with long feathers and necklaces of teeth (pl. 65, *bottom*). At
292 feasts chiefs wore a cap of feathers mounted on a cotton or *Bromelia* net, or large diadema.

MANUFACTURES

532 **Bark cloth.**—Various masks and zoomorphic figures are made of bark
287 cloth (pl. 64).

285 **Basketry.**—Clothes baskets are made of uarumã stalks with a round opening closed with a lid. Four points are drawn up and down over the lid and the bottom, the latter serving as legs. Other baskets have a flat square lid and bottom. Both types of baskets are made in all sizes, from 2 to 16 inches (4 to 40 cm.) in diameter. Burdens are carried
[482] in large conical baskets hexagonally woven of liana, or in cylindrical baskets of uarumã stalks. These are supported by an embira-fiber tumpline. The *Tucuna* also use pouches of looped tucum threads.

323 **Pottery.**—Women and sometimes men still make bowls, dishes, pans,
[531] and pots of clay, which are decorated with painted or modeled ornaments.
[776] Potter's clay is gathered according to certain rules so as not to anger its owner, a water demon who appears in the shape of the western rainbow.

415 **Gourds.**—Gourds are covered with a black lacquer, and may bear de-
531 signs in indelible red pigment. Wooden spoons are carved, sometimes in fantastic shapes.

411 **Weapons.**—The bow is 6½ feet (2 m.) long with the ends notched to hold the string. It is now rare, even as a fishing weapon. The hunting arrow has a poisoned wooden head and feathering of the arched type. Arrows are 5 feet 4 inches (1⅗ m.) long. Spears have three types of points: (1) a poisoned, wooden point with four corners; (2) an iron point; and (3) a plain pointed stick. The last two are still used to hunt jaguars and peccaries. The *Tucuna* blowgun is over
[278] 10 feet (3 m.) long, and the darts 1 foot (30 cm.) long. The poison
[178] is the most effective of any made in the Amazon Basin, but its manufacture, which requires much time and care, is now being forgotten.
[231] Hunting dogs, which are of little use, are, according to tradition, pre-
[173] Columbian.

SOCIAL AND POLITICAL ORGANIZATION

181 The *Tucuna* are industrious and hard working, kind to their friends, honest, patient, and hospitable. But they are more liable than other Indians
[762] to great outbursts of sudden anger, a trait which sometimes leads them to suicide. This is a manifestation of their individualism and desire to live